

misalignment between the body and wheels can reduce the aerodynamic efficiency of the vehicle; and therefore, a method of measuring this misalignment using the target system and the position determination system is provided.

IN THE CLAIMS:

Please amend claims 5, 7, 9, 11, 17, 28, 29, 34, 51 and 53, and cancel claims 1-4, 10 and 50 as follows:

5. (Amended) [The] A target system [according to claim 1] for use with a position determination system in determining the location of a position on a vehicle, [wherein] comprising:

a target body;

one or more target elements disposed on the target body and detectable by the position determination system; and

a point definer extending from the target body, the point definer including a point capable of being located adjacent the position on the vehicle, the point definer [includes] further including one or more joints that enable the point to be positioned at a different location relative to the target body,

wherein the position determination system is configured to determine a location of the target body after detecting the target elements disposed on the target body.

7. (Amended) The system according to claim 5, wherein the point definer includes one joint allowing the point to rotate along one [axes] axis [of rotation relative to

the target body], the point being positionable in any one of three positions relative to the target body.

9. (Amended) [The] A target system [according to claim 1] for use with a position determination system in determining the location of a position on a vehicle,
[further] comprising:

a target body;

one or more target elements disposed on the target body and detectable by the position determination system;

a point definer extending from the target body, the point definer including a point capable of being located adjacent the position on the vehicle, and

a trigger for operating the detection of the target system by the position determination system, the trigger which is positioned on the target body and is remote from the position determination system,

wherein the position determination system is configured to determine a location of the target body after detecting the target elements disposed on the target body.

11. (Amended) [The] A target system [according to claim 9] for use with a position determination system in determining the location of a position on a vehicle,
comprising:

a target body;

one or more target elements disposed on the target body and detectable by the position determination system;

a point definer extending from the target body, the point definer including a point capable of being located adjacent the position on the vehicle, and

a trigger for operating the detection of the target system by the position determination system, wherein the trigger operates the position determination system by selectively changing the detection of one or more of the target elements by the position determination system,

wherein the position determination system is configured to determine a location of the target body after detecting the target elements disposed on the target body.

17. (Amended) [The] A target system [according to claim 1] for use with a position determination system in determining the location of a position on a vehicle, [further] comprising:

a target body;

one or more target elements disposed on the target body and detectable by the position determination system;

a point definer extending from the target body, the point definer including a point capable of being located adjacent the position on the vehicle; and

an attachment device to stabilize the position of the target body relative to the vehicle and the point relative to the position of the vehicle to be located,

wherein the position determination system is configured to determine a location of the target body after detecting the target elements disposed on the target body.

28. (Amended) A position determination system for determining the location of a position on a vehicle, comprising:

[a vision imaging system; and]

a target system including

a target body,

one or more target elements disposed on the target body and detectable by the position determination system, and

a point definer extending from the target body, the point definer including

a point capable of being located adjacent the position on the vehicle; and

[wherein the] a vision imaging system configured to acquire an image of the target body to generate image information describing geometric characteristics and positional interrelationships of the target elements disposed on the target body imaged, and to relate such image information to predetermined reference information describing known geometric characteristics and positional interrelationships of the target elements to determine[s] a location and angular orientation of the target body [after detecting the target elements disposed on the target body].

29. (Amended) The system according to claim 28, wherein the point on the point definer is at a known location [from] with respect to the target body.

34. (Amended) The system according to claim 32, wherein the point definer includes one joint allowing the point to rotate along one axis [of rotation relative

to the target body], the point being positionable in any one of three positions relative to the target body.

51. (Amended) The system according to claim [50] 49, wherein the reference feature and the receiver prevent movement of the point definer relative to the attachment device in three axes.

53. (Amended) A position determination system for determining the location of a position on a vehicle, comprising:

a vision imaging system; and

a target system including

a target body;

one or more target elements disposed on the target body and detectable by the vision imaging system;

a trigger positioned on the target body and remote from the vision [determination] imaging system, the trigger operating the vision [determination] imaging system by selectively changing the detection of one or more of the target elements by the vision [determination] imaging system; and

a point definer extending from the target body, and the point definer including a point at a distal end of the point definer, the point being capable of being located adjacent the position on the vehicle, and the point is at a known location from the target body;

wherein the vision imaging system is configured to determine[s] a location of the target body after detecting the target elements disposed on the target body.

Please add the following new claims.

125. (New) The system according to claim 5, further comprising a trigger for operating the detection of the target system by the position determination system.

126. (New) The system according to claim 17, further comprising a trigger for operating the detection of the target system by the position determination system.

127. (New) The system according to claim 45, wherein the receiver includes a reference feature that defines the position of the connector relative to the point on the point definer.

128. (New) A position determination system for determining the location of a position on a vehicle, comprising:

a vision imaging system; and

a target system including

a target body,

one or more target elements disposed on the target body and detectable by the position determination system, and

a point definer extending from the target body, the point definer including a point capable of being located adjacent the position on the vehicle, the point

definer further including one or more joints that enable the point to be positioned at a different location relative to the target body;
wherein the vision imaging system is configured to determine a location of the target body after detecting the target elements disposed on the target body.

129. (New) The system according to claim 128, wherein the one or more joints each allow rotation of the point in one or more axis relative to the target body.

130. (New) The system according to claim 128, wherein the point definer includes one joint allowing the point to rotate along one axis, the point being positionable in any one of three positions relative to the target body.

131. (New) The system according to claim 128, wherein each joint includes a lock to selectively prevent or allow movement of the point relative to the target body.

132. (New) The system according to claim 128, further comprising a trigger for operating the detection of the target system by the vision imaging system.

133. (New) A position determination system for determining the location of a position on a vehicle, comprising:
a vision imaging system; and
a target system including
a target body,

one or more target elements disposed on the target body and detectable by the position determination system,

a point definer extending from the target body, the point definer including a point capable of being located adjacent the position on the vehicle, and

a trigger for operating the detection of the target system by the vision imaging system, the trigger which is positioned on the target body and is remote from the vision imaging system;

wherein the vision imaging system is configured to determine a location of the target body after detecting the target elements disposed on the target body.

134. (New) A position determination system for determining the location of a position on a vehicle, comprising:

a vision imaging system; and

a target system including

a target body,

one or more target elements disposed on the target body and detectable by the position determination system,

a point definer extending from the target body, the point definer including a point capable of being located adjacent the position on the vehicle, and

a trigger for operating the detection of the target system by the vision imaging system, wherein the trigger operates the position determination system by selectively changing the detection of one or more of the target elements by the vision imaging system;

wherein the vision imaging system is configured to determine a location of the target body after detecting the target elements disposed on the target body.

135. (New) The system according to claim 134, wherein the trigger is movable between first and second positions, and in a first position, the trigger conceals the one or more target elements from the vision imaging system, and in the second position, the trigger exposes the one or more target elements to the vision imaging system.

136. (New) A position determination system for determining the location of a position on a vehicle, comprising:

a vision imaging system;

a target system including

a target body,

one or more target elements disposed on the target body and detectable by the position determination system, and

a point definer extending from the target body, the point definer including a point capable of being located adjacent the position on the vehicle; and

an attachment device to stabilize the position of the target body relative to the vehicle and the point on the point definer relative to the position of the vehicle to be located;

wherein the vision imaging system is configured to determine a location of the target body after detecting the target elements disposed on the target body.

137. (New) The system according to claim 136, wherein the attachment device further comprises a receiver to which the point definer is attached and a connector that connects with the vehicle.

138. (New) The system according to claim 137, wherein the receiver includes a reference feature that defines the position of the attachment device relative to the point on the point definer.

139. (New) The system according to claim 138, wherein the connector defines a positional relationship between the position on the vehicle to be located and the reference feature.

140. (New) The system according to claim 137, wherein the receiver defines a cylindrical recess into which a portion of the point definer is inserted.

141. (New) The system according to claim 137, wherein the receiver includes a reference feature that defines the position of the connector relative to the point on the point definer.

142. (New) The system according to claim 137, wherein the attachment device is adapted to be attached to a strut of the vehicle.

143. (New) The system according to claim 142, wherein the reference feature and the receiver prevent movement of the point definer relative to the attachment device in three axes.

144. (New) The system according to claim 143, wherein the reference feature is a flat plane bounding a portion of the recess.

145. (New) The system according to claim 136, further comprising a trigger for operating the detection of the target system by the vision imaging system.

146. (New) A position determination system for determining the location of a position on a vehicle, comprising:

target means including

body means,

element means disposed on the body means and detectable by the position determination system, and

defining means extending from the body means, the defining means including point means capable of being located adjacent the position on the vehicle; and

imaging means configured to acquire an image of the body means to generate image information describing geometric characteristics and positional interrelationships of the element means disposed on the body means imaged, and to relate such image information to predetermined reference information describing known geometric characteristics and